

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the above-identified application.

LISTING OF CLAIMS:

1. (Currently amended) A method for cleaning processing a plasma processing apparatus having a plasma generating means for generating plasma within a processing chamber, a high-frequency power applying means for applying high-frequency power to an object to be processed, a processing chamber to which an evacuating device is connected and ~~which has~~capable of having its interior evacuated, and a gas supply device for the processing chamber, said method comprising:

mounting a Si wafer on an electrode for holding the object to be processed, introducing hydrobromic gas and chlorine gas into the processing chamber and generating plasma, and removing an ~~aluminum fluoride~~aluminum-based deposit adhered to the interior of the processing chamber by applying the high-frequency power to the Si wafer.

2. (Cancelled).

3. (Currently amended) ~~A plasma processing~~ method for cleaning processing a plasma processing apparatus for generating a plasma in a vacuum container of the plasma processing apparatus and plasma processing a substrate placed on a substrate holder disposed within the vacuum container, comprising:

providing a period for cleaning an aluminum fluoride deposit in the vacuum container by generating plasma containing chlorine gas and hydrobromic gas

~~halogen gas excluding fluorine and an element that reacts with fluorine to create a~~
gas-phase reaction product either each time after plasma processing a wafer or
plural wafers or before ~~and/or~~ after plasma processing ~~plural wafers~~.

4. – 7. (Cancelled).

8. (Currently amended) The ~~plasma processing~~ method for cleaning
processing a plasma processing apparatus according to claim any one of claims 3,
further comprising through 7, wherein
~~—— a method for supplying Si atoms comprises placing a Si wafer, especially a Si~~
~~wafer~~ with no patterns printed thereon, on the substrate holder when the ~~halogen~~
plasma including chlorine gas and hydrobromic gas is discharged, and applying
high-frequency power to the Si wafer through the substrate holder.

9. (Currently amended) The ~~plasma processing~~ method for cleaning
processing a plasma processing apparatus according to claim any one of claims 3,
further comprising through 7, wherein
~~—— a method for supplying Si atoms comprises placing a Si wafer, especially a Si~~
~~wafer~~ with no patterns printed thereon, on the substrate holder when the ~~halogen~~
plasma including chlorine gas and hydrobromic gas is discharged, and applying
high-frequency power to the Si wafer through the substrate holder, wherein the high-
frequency power being applied corresponds to a frequency of 400 kHz and is equal
to or greater than 0.110-0.28 W per unit area (1 cm^2) of the Si wafer, ~~and preferably~~
~~equal to or greater than 0.11 W.~~

10. (Currently amended) The ~~plasma processing method for cleaning~~
~~processing a plasma processing apparatus~~ according to ~~claim~~~~any one of claims~~ 3
through ~~9~~, wherein

a ratio of an area of an earth to the area of an inner wall of the vacuum
container in contact with plasma is 40 % or more.

11. and 12. (Cancelled).

13. (Currently amended) The ~~plasma processing method for cleaning~~
~~processing a plasma processing apparatus~~ according to claim 3, wherein
~~the element that reacts with fluorine to create a gas phase reaction product is~~
~~provided by supplying N₂, CO, CO₂, H₂ or SO₂~~ is supplied simultaneously with the
~~halogen~~ chlorine gas and the hydrobromic gas contained in the plasma gas-excluding
~~fluorine.~~

14. (Currently amended) The ~~plasma processing method for cleaning~~
~~processing a plasma processing apparatus~~ according to ~~claim~~~~any one of claims~~ 3
through ~~13~~, further comprising:

providing a period for generating plasma containing SF₆ prior to said period
for generating plasma with the ~~chlorine~~~~halogen gas and hydrobromic gas-excluding~~
~~fluorine.~~

15. (New) The method for cleaning processing a plasma processing
apparatus according to claim 3, wherein said plasma containing chlorine gas and
hydrobromine gas additionally contains Si, to create the gas phase reaction product.

16. (New) The method for cleaning processing a plasma processing apparatus according to claim 3, wherein a portion of material constituting the vacuum container includes Si, and the cleaning processing for cleaning the aluminum fluoride deposit in the vacuum container is performed using the chlorine gas and the hydrobromic gas.

17. (New) The method for cleaning processing a plasma processing apparatus according to claim 3, wherein the plasma containing chlorine gas and hydrobromic gas, used in the cleaning processing, additionally contains SiCl_4 gas.